

## Supplementary Online Content

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This supplementary material has been provided by the authors to give readers additional information about their work.

**eTable 1. Number of Suicide Events in 1996-2010 by Frequency of Religious Service Attendance in 1996**

	Religious service attendance in 1996				
	All	Never	< Once/week	Once/week	> Once/week
Follow-up, person-years	1159470	275843	188798	473289	221540
Suicides related to any cause, <i>n</i>	36	18	11	5	2
Incidence rate per 100 000 person-years	3	7	6	1	1
<b>Subgroups by religious affiliation</b>					
<b>Catholic</b>					
Follow-up, person-years	592989	102532	67287	311542	111628
Suicides related to any cause, <i>n</i>	9	6	2	1	0
Incidence rate per 100 000 person-years	2	6	3	0.3	0
<b>Protestant</b>					
Follow-up, person-years	732511	206748	139153	247417	139193
Suicides related to any cause, <i>n</i>	19	7	7	4	1
Incidence rate per 100 000 person-years	3	3	5	2	1

**eTable 2. Sensitivity Analyses for Hazard Ratio Estimates for Suicide Events by Frequency of Religious Service Attendance in 1996**

	Religious service attendance in 1996		
	Never	Less than once /week	Once or more /week
Total suicide events (1996-2010, total n=36)	18	11	7
Adjusted for age	Reference	0.91 (0.43-1.94)	0.15 (0.06-0.37)
Adjusted for age and lifestyle demographic variables, and religious service attendance in 1992 <sup>a</sup>	Reference	0.88 (0.38-2.07)	0.16 (0.06-0.45)
Further adjusted for other aspects of social integration in 1992 <sup>c</sup>	Reference	0.85 (0.36-2.00)	0.16 (0.06-0.46)
<b>Sensitivity analysis</b>			
<b>After excluded participants who were depressed in 1996: score of ≤52 on the 5-item Mental Health Inventory, self-reported depression, or use of antidepressant</b>			
Total suicide events (1996-2010, n=32)	16	10	6
Adjusted for age	Reference	0.92 (0.42-2.04)	0.15 (0.06-0.38)
Adjusted for age and lifestyle demographic variables, and religious service attendance in 1992 <sup>a,b</sup>	Reference	0.95 (0.39-2.33)	0.13 (0.04-0.41)
Further adjusted for other aspects of social integration in 1992 <sup>c</sup>	Reference	0.93 (0.37-2.30)	0.14 (0.04-0.43)
<b>After excluded participants who at 1996 had a history of cancer (except non-melanoma skin cancer) or a cardiovascular condition (myocardial infarction, coronary artery bypass graft surgery, percutaneous transluminal coronary angioplasty, or stroke):</b>			
Total suicide events (1996-2010, n=29)	14	10	5
Adjusted for age	Reference	1.07 (0.47-2.41)	0.14 (0.05-0.39)
Adjusted for age and lifestyle demographic variables, and religious service attendance in 1992 <sup>a</sup>	Reference	1.12 (0.44-2.84)	0.15 (0.05-0.50)
Further adjusted for other aspects of social integration in 1992 <sup>c</sup>	Reference	1.13 (0.44-2.92)	0.17 (0.05-0.55)

<sup>a</sup> Adjusted for age; employment status (not employed outside the home or retired, employed part-time outside the home, employed full-time outside the home); family history of alcoholism (yes/no); body mass index (<20, 20-24.9, 25-29.9, 30-34.9, ≥35 kg/m<sup>2</sup>); physical activity in metabolic equivalent of tasks per week (quintiles); caffeine intake (g/day); alcohol intake (g/day); smoking status (never, former, and current in categories of 1-14, 15-24, and ≥25 cigarettes per day); depressive symptoms (yes/no); history of diabetes, hypertension, cancer or hypercholesterolemia (yes/no); family income (quintiles, dollars/year); live alone (yes/no); geographic region (north, south, middle), and religious service attendance in 1992 (never, less than once/week, once or more/week).

<sup>b</sup> Adjustment for depressive symptoms by restriction rather than regression.

<sup>c</sup> Further adjusted for other aspects of social integration in 1992, including marital status(not married, married), relative and friends score, relatives and friends frequency index, and social group participation (none, any number of hours). Social integration score, including score and frequency of relatives and friends were derived based on the definition from Am J Epidemiol 1979;109:186-204. For adjustment, we derived social integration score without religious service attendance components.

**eTable 3. Joint Associations of Religious Service Attendance in 1992 and 1996**

Religious service attendance in 1992 and 1996	Persons	Years	Suicide events	Crude incidence/100k py	HR <sup>a</sup>	HR <sup>b</sup>	HR <sup>c</sup>
Less than once /week in 1992 and less than once /week in 1996	224279	438542	27	6	Reference	Reference	Reference
Less than once /week in 1992 and once or more /week in 1996	119740	233279	3	1	0.21 (0.06-0.69)	0.21 (0.06-0.72)	0.20 (0.06-0.68)
Once or more /week in 1992 and less than once /week in 1996	13362	26099	2	8	1.14 (0.27-4.82)	1.30 (0.30-5.65)	1.41 (0.32-6.25)
Once or more /week in 1992 and once or more /week in 1996	235027	461550	4	1	0.14 (0.05-0.39)	0.13 (0.04-0.39)	0.15 (0.05-0.46)

<sup>a</sup> Adjusted for age.

<sup>b</sup> Further adjusted for employment status (not employed outside the home or retired, employed part-time outside the home, employed full-time outside the home); family history of alcoholism (yes/no); body mass index (<20, 20-24.9, 25-29.9, 30-34.9, ≥35 kg/m<sup>2</sup>); physical activity in metabolic equivalent of tasks per week (quintiles); caffeine intake (g/day); alcohol intake (g/day); smoking status (never, former, and current in categories of 1-14, 15-24, and ≥25 cigarettes per day); depressive symptoms (yes/no), history of diabetes, hypertension, cancer or hypercholesterolemia (yes/no), family income (quintiles, dollars/year), live alone (yes/no), geographic region (north, south, middle), and religious service attendance in 1992 (never, less than once/week, once or more/week).

<sup>c</sup> Further adjusted for other aspects of social integration in 1992, including marital status(not married, married), relative and friends score, relatives and friends frequency index, and social group participation (none, any number of hours). Social integration score, including score and frequency of relatives and friends were derived based on the definition from Am J Epidemiol 1979;109:186-204. For adjustment, we derived social integration score without religious service attendance components.

**eTable 4. Effect Size Comparison of Religious Service Attendance and Social Integration Score**

		HR and 95%CI	P Value		HR and 95%CI	P Value
Religious service attendance in 1996 <sup>a</sup>	Once or more /week, yes vs.no	0.17 (0.07-0.47)	.0005	Once or more /week, yes vs.no	0.16 (0.06-0.43)	.0003
Social integration score in 1996 with service attendance excluded <sup>b</sup>	Continuous, per 1SD increase <sup>e</sup>	0.82 (0.52-1.28)	.38	$\geq 7$ vs. $< 7$ <sup>f</sup>	1.28 (0.59-2.75)	.53
Social integration score included religious service attendance in 1996. (the original definition version of social integration score) <sup>c</sup>	Continuous, per 1SD increase <sup>e</sup>	0.67 (0.41-1.10)	.11	$\geq 6$ vs. $< 6$ <sup>f</sup>	0.83 (0.39-1.78)	.63
Components of social integration score in 1996 <sup>d</sup>	Currently married (yes, vs. no)	1.60 (0.52-4.92)	.41	yes vs. no	1.46 (0.47-4.57)	.52
	Number of close friends (continuous) <sup>e</sup>	1.17 (0.75-1.81)	.48	$\geq 3$ vs. $< 3$ <sup>f</sup>	0.84 (0.27-2.66)	.77
	Number of close relatives (continuous) <sup>e</sup>	0.84 (0.56-1.24)	.38	$\geq 3$ vs. $< 3$ <sup>f</sup>	1.37 (0.55-3.38)	.50
	Close relatives seen at least once/month (ordinal) <sup>e</sup>	0.99 (0.65-1.50)	.95	$\geq 2$ vs. $< 2$ <sup>f</sup>	0.66 (0.28-1.59)	.36
	Close friends seen at least once/month (ordinal) <sup>e</sup>	0.64 (0.38-1.08)	.10	$\geq 3$ vs. $< 3$ <sup>f</sup>	0.78 (0.28-2.16)	.63
	Hours of social group participation (continuous) <sup>e</sup>	1.11 (0.80-1.53)	.53	$\geq 2$ vs. $< 2$ <sup>f</sup>	1.22 (0.55-2.69)	.62

<sup>a</sup> Adjusted for age; employment status (not employed outside the home or retired, employed part-time outside the home, employed full-time outside the home); family history of alcoholism (yes/no); body mass index (<20, 20-24.9, 25-29.9, 30-34.9,  $\geq 35$  kg/m<sup>2</sup>); physical activity in metabolic equivalent of tasks per week (quintiles); caffeine intake (g/day); alcohol intake (g/day); smoking status (never, former, and current in categories of 1-14, 15-24, and  $\geq 25$  cigarettes per day); depressive symptoms (yes/no); family income (quintiles, dollars/year), live alone (yes/no), geographic region (north, south, middle), and history of diabetes, hypertension, cancer or hypercholesterolemia (yes/no), religious service attendance in 1992 (never, less than once/week, once or more/week), other aspects of social integration in 1996, including marital status(not married, married), relative and friends score, relatives and friends frequency index, and social group

participation (none, any number of hours). Social integration score, including score and frequency of relatives and friends were derived based on the definition from Am J Epidemiol 1979;109:186-204. For adjustment, we derived social integration score without religious service attendance components.

<sup>b</sup> Adjusted for religious service attendance in 1996 (less than once/week, once or more/week), age; employment status (not employed outside the home or retired, employed part-time outside the home, employed full-time outside the home); family history of alcoholism (yes/no); body mass index (<20, 20-24.9, 25-29.9, 30-34.9, ≥35 kg/m<sup>2</sup>); physical activity in metabolic equivalent of tasks per week (quintiles); caffeine intake (g/day); alcohol intake (g/day); smoking status (never, former, and current in categories of 1-14, 15-24, and ≥25 cigarettes per day); depressive symptoms (yes/no), family income (quintiles, dollars/year), live alone (yes/no), geographic region (north, south, middle), and history of diabetes, hypertension, cancer or hypercholesterolemia (yes/no), and religious service attendance in 1992 (never, less than once/week, once or more/week).

SD for social integration score=3.1 Median for social integration score=7.

<sup>c</sup> Model did not adjust for religious service attendance in 1996, since it is already part of the definition for the original social integration score definition.

<sup>d</sup> Mutually adjusted for components of social integration score.

<sup>e</sup> Modeled as continuous variable or ordinal variable.

<sup>f</sup> Modeled as binary variable.

**eTable 5. Effect Size Comparison of Religious Service Attendance and Other Covariates**

	Hazard ratio and 95% CI	P Value
Religious service attendance once or more per week in 1996 vs. less than once per week in 1996	0.18 [0.07-0.46]	.004
Religious service attendance less than once per week in 1992	1.31 [0.59-2.90]	.50
Religious service attendance once or more per week in 1992	0.91 [0.27-3.05]	.87
Hypertension	0.79 [0.35-1.76]	.56
High cholesterolemia	0.73 [0.35-1.51]	.39
Diabetes	1.19 [0.26-5.32]	.82
Cancer	0.81 [0.24-2.74]	.73
Full time employment	Ref	
Part time employment	1.80 [0.63-5.19]	.27
Retired or homemaker	4.36 [1.64-11.57]	.003
Employment information missing	1.70 [0.56-5.14]	.35
Never smoker	Ref	
Past smoker	1.35 [0.59-3.10]	.48
Current smoker, 1-14 cigs/day	2.08 [0.54-7.94]	.28
Current smoker, 15-24 cigs/day	1.82 [0.47-7.06]	.39
Current smoker, 25+ cigs/day	5.64 [1.68-19.01]	.005
Family history of alcohol issue	2.10 [1.00-4.40]	.04
BMI <20 kg/m <sup>2</sup>	1.69 [0.55-5.21]	.36
BMI 20-24.9 kg/m <sup>2</sup>	Ref	
BMI 25-29.9 kg/m <sup>2</sup>	0.46 [0.19-1.12]	.09
BMI 30-34.5 kg/m <sup>2</sup>	0.95 [0.33-2.70]	.92
BMI >35 kg/m <sup>2</sup>	0.68 [0.15-3.18]	.63
Physical activity < 3 METs hr/wk	Ref	
Physical activity 3-9 METs hr/wk	0.26 [0.07-0.92]	.04
Physical activity 9-18 METs hr/wk	1.14 [0.50-2.63]	.75
Physical activity 18-27 METs hr/wk	0.36 [0.10-1.35]	.13
Physical activity 27+ METs hr/wk	0.45 [0.16-1.24]	.12
Caffeine intake	1.00 [0.99-1.00]	.70
Alcohol intake, g/d	0.99 [0.95-1.03]	.47
Social integration score	0.82 [0.52-1.28]	.38
Live alone	1.63 [0.61-4.32]	.33
North	0.54 [0.18-1.60]	.26
South	0.35 [0.08-1.53]	.16
middle	0.46 [0.15-1.39]	.17
Median family income quartile 1	Ref	
Median family income quartile 2	1.58 [0.60-4.15]	.36
Median family income quartile 3	1.36 [0.51-3.62]	.53
Median family income quartile 4	0.79 [0.27-2.33]	.67
Depressive symptoms	1.79 [0.59-5.39]	.30